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(56) Documents cited
 GB 2026644 A GB 1528963 A GB 1425899 A
 GB 1179267 A GB 1070780 A GB 0868578 A
 GB 0682101 A

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 UK CL (Edition K) F2H, F2M
 INT CL⁶ F16B
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(54) Truss location and attachment device

(57) A truss location and attachment device has at least one rectangular truss plate portion 1 carrying a wall plate attachment means 5. The attachment may be by means of a foldable flap such as a rectangular flap attached to one end of a flange 3 extending substantially at a right angle along part of one longer side 4 of the truss plate portion. Alternatively the flap may be formed from the rectangular truss plate portion and folded outwardly and twisted to lie against and be attached to a wall plate. The flap may be a strip folded out from one longer or shorter edge of the truss plate portion. It is possible for the strip flap to be removed from the truss plate portion and used independently as a truss clip. The flap may be connected to a wall plate by means of nails or integral teeth.

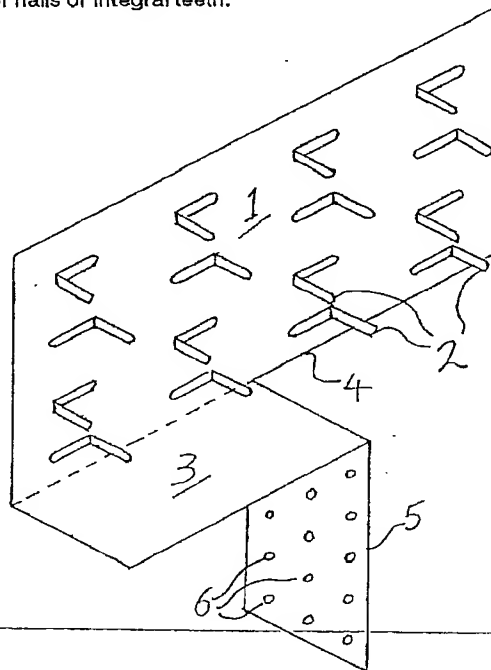


Figure 1

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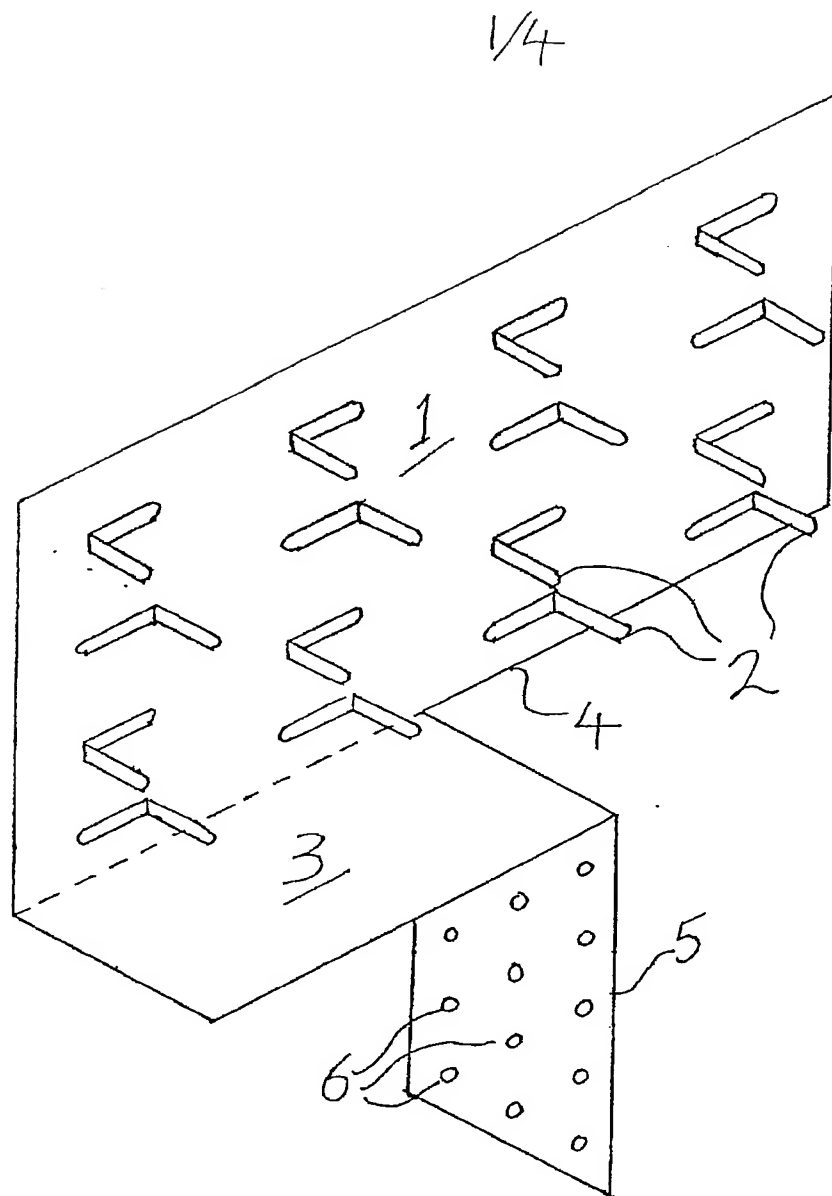


Figure 1

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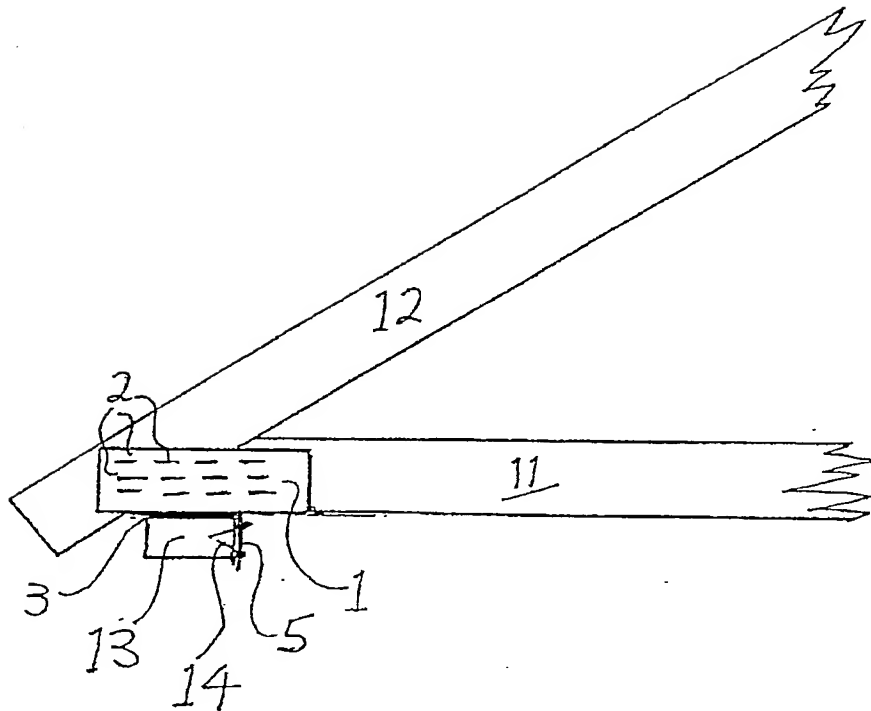
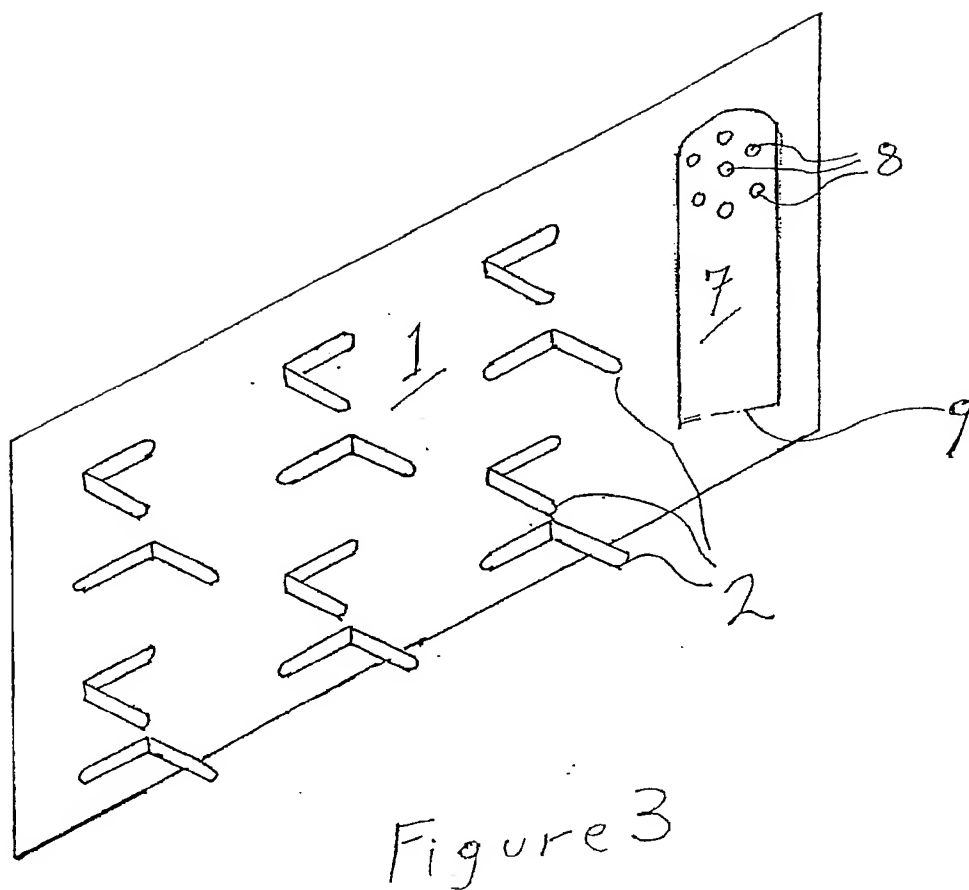


Figure 2

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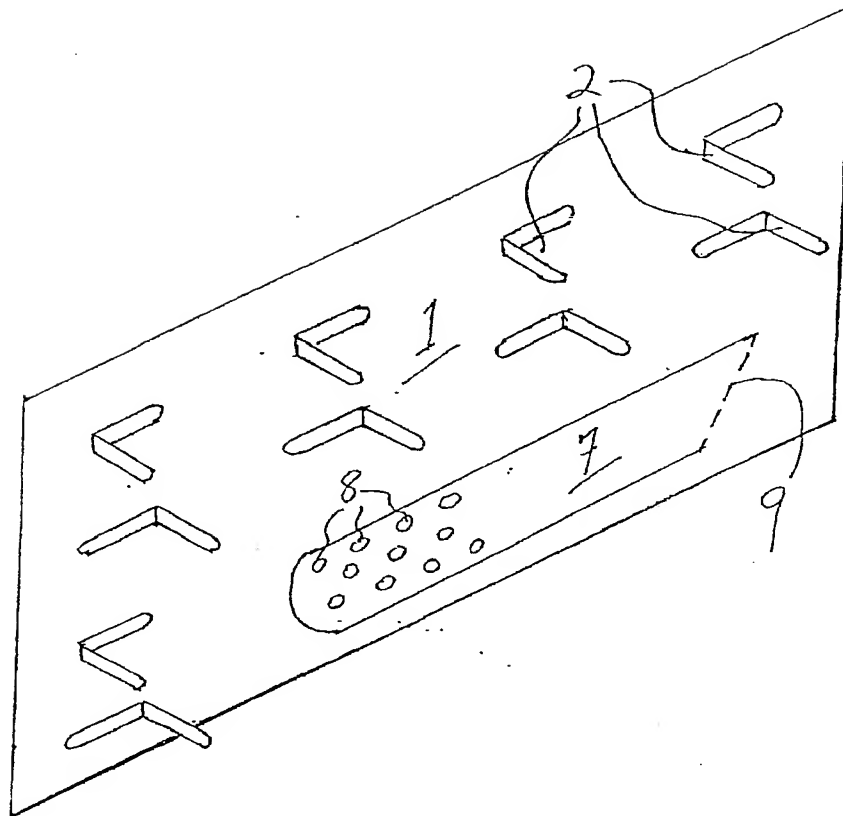


Figure 4

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A TRUSS LOCATION AND ATTACHMENT DEVICE

This invention relates to a device for accurately locating and attaching roof trusses to wall plates.

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Timber roof trusses are widely used in the building industry. They comprise a triangulated frame in which the members are all the same thickness, are butt joined and secured with truss plates. The truss plates may either
10 take the form of a perforated plate which is fastened to the truss timber by nails driven through the perforations or the metal may be punched through to form teeth which are driven into the truss timber using a press.

15 A pitched roof is formed by placing a series of trusses across the space between two walls of a building. In the case of domestic and similar buildings with two leaves forming a cavity wall the trusses rest on a wooden wall plate which is usually placed on the top course of the
20 inner leaf. It is necessary for the roof truss to be secured to the wall plate in a manner which prevents any planar movement over the surface of the wall plate and which also prevents vertical movement due to wind uplift on the associated roof. The fastenings used to hold roof
25 trusses to a wall plate are commonly called truss clips. They are usually made from galvanised steel or similar corrosion resistant material and fixed by means of nails driven through apertures into the truss and the wall plate. Truss plates and clips are described in Mechanical Fixing
30 Devices in the Building Industry by Paul Marsh and Derrick Beckett [The Construction Press, 1975].

In most situations the base of the roof truss, the tie or ceiling joist, rests on the wall tie near to its joint with
35 a rafter. The truss clip will therefore have to be

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attached to the wall plate at a point close to a truss plate. The distance of the joint from the wall plate is critical and is specified in British Standards.

- 5 The present invention provides a combined truss plate and truss clip which facilitates construction of pitched roofs using preformed trusses. The combination ensures accurate location of the truss clip with respect to the wall plate and ensures that it is firmly held in position.

- 10 According to the present invention there is provided a truss location and attachment device comprising at least one rectangular truss plate portion carrying wall plate attachment means comprising a foldable flap adapted to be
15 connected to a wall plate by means of nails or integral teeth.

- In one embodiment the truss plate portion carries a flange extending substantially at a right angle along part of one
20 longer side and the wall plate attachment means comprises a rectangular flap attached to one end of the flange and folded or foldable away from the truss plate. Part or all of the flap is perforated to allow nails to be driven through it into the wall plate timber.

- 25 In an alternative embodiment the wall plate attachment means comprises a flap formed from the rectangular truss plate portion and folded outwardly and twisted to lie against and be attached to a wall plate. The flap may be
30 a strip folded out from one longer or shorter edge of the truss plate and twisted through a right angle to form a wall plate attachment means. The portion lying in contact with the wall plate is perforated to allow nails to be driven through. In this embodiment the truss plate
35 portion may carry a flange extending substantially at a right angle along part of one longer side.

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The flap strip may carry perforations at each end and be only weakly attached to the truss plate portion of the device. Such a flap may be removed on site and used as an independent truss clip by directing nails through the perforations at each end into a truss and a wall plate respectively.

The truss plate portion of the device can take any conventional form. The plate may be drilled or punched with a series of apertures to allow the plate to be fastened by means of nails or screws. Alternatively the plate may be punched to provide a pattern of toothes or protrusions extending outwardly from the surface. Such punched plates can be fitted to timbers by means of presses in known manner at the time the trusses are assembled.

In one embodiment the device carries two truss plate portions joined by the flange. The plates on each side of the flange are forced into the two respective sides of a timber joint.

The flap portion which is attached to the wall plate may be folded into position on site. This enables a roof truss incorporating devices according to the invention to be transported easily without damage occurring to a the projecting flap. The flap may easily be forced into position for nailing to the wall plate by the use of conventional hand tools.

The truss location and attachment device can be manufactured in a series of sizes to fit the various standard sizes of timber used in forming roof trusses. The device is preferably fabricated from sheet steel having a thickness in the range 2.5 mm to 6 mm. In order to avoid corrosion the device is preferably formed from galvanised steel sheet

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or stainless steel alloy sheet. Alternatively the metal may be surface treated and coated with a water impervious coating.

- 5 The rectangular truss plate portion of the truss location and attachment device must have sufficient area to cover a major portion of the width of the timbers that it joints and lies in the range 100 mm to 300 mm for the longer side and 50 mm to 150 mm for the shorter side, for example 200
10 mm by 90 mm will suit an average roof truss with 100 mm width wood. The flange which rests on the wall plate may be 30 mm to 60 mm in width and the foldable flap will extend from 60 mm to 120 mm. The metal sheet used to form the larger devices may be of a heavier gauge than that used
15 for the smaller devices.

In order that the invention may be clearly understood it will now be described with reference to the accompanying drawings in which:

- 20 Figure 1 is a perspective view of one form of a roof truss location and attachment device according to the invention, Figure 2 is a side view of one end of a roof truss fixed with the device shown in Figure 1, Figure 3 is an alternative embodiment of the device
25 according to the invention, and Figure 4 is a further embodiment of the device according to the invention.

- A truss location and attachment device, see Figure 1,
30 consists of a rectangular plate 1 which has been punched to provide a series of vertical protrusions 2. The plate 1 carrying the protrusions 2 is effectively a truss plate and is referred to as the truss plate portion of the device.

- The plate 1 carries a flange 3 extending substantially at a
35 right angle along part of one longer side 4 of the plate.

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One end of the flange 3 carries a flap 5 folded downwards. The flap 5 is perforated with a series of apertures 6.

In use, see Figure 2, the device is attached to the joint
5 between a ceiling joist 11 and a rafter 12 forming part of a roof truss by driving the protrusions 2 into the wood forming the joist 11 and the rafter 12. The plate 1 acts as a truss plate and holds the two components 11 and 12 rigidly together. The flange 3 is located beneath the
10 joist 11 and rests on a wall plate 13 lying on the upper course of a wall, not shown. The operation of securing the two components 11 and 12 will normally be carried out by means of a press on the premises where the roof trusses are fabricated.

15 The flap 3 abuts one edge of the wall plate 13 and is firmly attached to it by means of a series of nails 14 driven through the apertures 6 in the flap 5. The attachment of the flap 5 to the wall plate 13 will normally
20 be carried out on site. For convenience of transport the flap 5 may initially be left unfolded lying along the base of the joist 11. On site the flap 5 is folded downwards before the truss is laid on the roof plate 13.

25 In an alternative embodiment, see Figure 3, the truss plate portion of the device carries a wall plate attachment means comprising a flap formed from a punched out strip 7 parallel to one shorter edge of the truss plate. The strip 7 carries a set of perforations 8 at one end and is
30 adapted to be folded outwardly along the line 9. When the strip 7 is bent along the line 9 to the maximum extent possible it will point downwardly with the surface in the same plane as the truss portion. If the end carrying the perforations 8 is twisted through a right angle it will lie
35 against and may be nailed to any wall plate on which the

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joist associated with the device is resting.

The punched out attachment strip 7, see Figure 4, may alternatively be arranged to lie parallel to one longer edge of the truss plate. The the folding line 9 is set at 45° to the axis of the truss plate so that when the strip 7 is folded it will point downwardly. As with the previous embodiment, if the end carrying the perforations 8 is twisted through a right angle it will lie against and may be nailed to the wall plate.

It will be seen that by appropriate location of the device according to the invention on a roof truss it will be possible to locate the point of attachment to the wall tie accurately according to the recommendations of BS 5268 part 3 without the need for measurement on site.

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CLAIMS

1. A truss location and attachment device comprising at least one rectangular truss plate portion carrying wall
5 plate attachment means comprising a foldable flap adapted to be connected to a wall plate by means of nails or integral teeth.
2. A device as claimed in claim 1 in which the truss
10 plate portion carries a flange extending substantially at a right angle along part of one longer side and the wall plate attachment means comprises a rectangular flap attached to one end of the flange and folded or foldable away from the truss plate.
- 15 3. A device as claimed in claim 1 in which the wall plate attachment means comprises a flap formed from the rectangular truss plate portion and folded outwardly and twisted to lie against and be attached to a wall plate.
- 20 4. A device as claimed in claim 1 in which the wall plate attachment means comprises a flap formed from the rectangular truss plate portion adapted to be twisted through a right angle and removed to form a truss clip by
25 attachment to a truss and to a wall plate.
5. A device as claimed in claim 3 in which the flap comprises a strip folded out from one longer edge of the truss plate portion and twisted through a right angle to
30 form a wall plate attachment means.
6. A device as claimed in claim 3 in which the flap comprises a strip folded out from one shorter edge of the truss plate portion and twisted through a right angle to
35 form a wall plate attachment means.

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7. A device as claimed in any of the preceding claims 3
to 6 in which the truss plate portion carries a flange
extending substantially at a right angle along part of one
5 longer side.

8. A device as claimed in any of the preceding claims in
which the flap carries perforations arranged to receive
nails.
10

9. A device as claimed in either claim 2 or claim 7 in
which the flange is attached to two truss plate portions
and each carries wall plate attachment means.

15 10. A device as claimed in any of the preceding claims
fabricated from galvanised or stainless steel having a
thickness in the range 2.5 mm to 6mm.

11. A device as claimed in any of the preceding claims in
20 which the longer side of the truss plate portion lies in
the range 100 mm to 300 mm and the shorter side lies in the
range 50 mm to 150 mm.

12. Truss location and attachment devices according to
25 claim 1 and as herein described.

13. Truss location and attachment devices as herein
described with reference to the accompanying drawings.

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Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

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Relevant Technical fields

(i) UK CI (Edition) F2M, F2H

(iii) Int CI (Edition) F16B

Databases (see over)

(i) UK Patent Office

(ii)
 ONLINE DATABASES WPI

Search Examiner

G HEMSLEY

Date of Search

26 FEBRUARY 199

Documents considered relevant following a search in respect of claims

1-3, 5-13

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X,Y	GB 2026644 A (BAT etc)	1,8,10, 11
X,Y	GB 1528963 (MASENGILL)	1
Y	GB 1425899 (KELLY)	1
X,Y	GB 1179267 (INTERNATIONAL ETC) figures 7 and 16	1,2,8, 10,11
X,Y	GB 1070780 (TIMBER etc) figures 3 and 4	1,2,3
X,Y	GB 868578 (WALLIS)	1,8
Y	GB 682101 (MEHEW)	1,2,8, 10,11

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Category	Identity of document and relevant passages	Relevant to claim(s)

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